

# Dielectric Powders

## Microwave Applications

### Product Features

- Specific Tuning Capabilities for Ceramic Characteristics
- Wide Variety of K Values
- High Q Value!
- Stable Temperature Coefficient



### Applications

- Dielectric Resonator / Filter
- Patch Antennas
- Substrate for MIC
- Single-Layer Capacitor for HF

| Designation | $\epsilon_r^*$ | $\tau_f$<br>(ppm/°C) | Q x f<br>(1GHz) | I.R.<br>( $\Omega$ -cm) | $\rho_s$<br>(g/c.c) | Reference Firing<br>Temperature, °C |
|-------------|----------------|----------------------|-----------------|-------------------------|---------------------|-------------------------------------|
| NPO-10M     | ~ 8            | -15~+15              | >12,000         | >1x10 <sup>13</sup>     | 3.2                 | 1355°C                              |
| NPO-13M     | ~13            | -15~+15              | >40,000         | >1x10 <sup>13</sup>     | 3.4                 | 1355°C                              |
| NPO-20MS    | ~20            | -10~+10              | >50,000         | >1x10 <sup>13</sup>     | 3.7                 | 1365°C                              |
| NPO-37M     | ~36            | -5~+5                | >40,000         | >1x10 <sup>13</sup>     | 4.5                 | 1180°C                              |
| NPO-40M     | ~38            | -10~+10              | >50,000         | >1x10 <sup>13</sup>     | 4.5                 | 1375°C                              |
| NPO-45M     | ~45            | -10~+10              | >15,000         | >1x10 <sup>13</sup>     | 5.0                 | 1335°C                              |
| NPO-45MF    | ~47            | -10~+10              | >15,000         | >1x10 <sup>13</sup>     | 4.7                 | 1300°C                              |
| NPO-65M     | ~65            | -10~+10              | >10,000         | >1x10 <sup>13</sup>     | 5.2                 | 1305°C                              |
| NPO-90M     | ~87            | -10~+10              | >5,500          | >1x10 <sup>13</sup>     | 5.5                 | 1295°C                              |
| NPO-90ML    | ~95            | -10~+10              | >5,500          | >1x10 <sup>13</sup>     | 5.6                 | 1290°C                              |
| NPO-100M    | ~100           | -20~+20              | >4,000          | >1x10 <sup>13</sup>     | 5.6                 | 1325°C                              |
| NPO-130M    | ~130           | -30~+30              | >1,500          | >1x10 <sup>13</sup>     | 5.8                 | 1255°C                              |

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